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ORIGINAL ARTICLES

VALUE OF THE HINTON TEST IN REDUCING THE NUMBER OF LUMBAR PUNCTURES IN SYPHILIS*

WILLIAM A. HINTON, M.D.,

Director, Department of Clinical Research, The Boston Dispensary

The necessity of routine examinations of spinal fluids for evidence of neurosyphilis arose because symptoms of syphilis of the nervous system often occurred even though repeated Wassermann reactions of the blood were negative. According to various authorities from 40 to 65% of persons suffering from neurosyphilis had persistently negative Wassermann reactions of the blood though their spinal fluids were abnormal. My own figures (unpublished) based on a study of several large groups of neurosyphilitics showed that roughly 50% who had negative Wassermann reactions of the blood had abnormal spinal fluids.

Examinations of spinal fluids for abnormalities resulting from syphilis were first employed to aid in the diagnosis of neurosyphilis. Their increasing use, however, showed that they were helpful in estimating the effect of treatment upon neurosyphilis since they made it possible to observe lessening and in many instances even abolishment of such abnormalities in the course of treatment.

Furthermore, it was observed that many syphilitics who had previously shown no clinical signs of neurosyphilis and whose blood gave a negative Wassermann reaction as a result of treatment relapsed with severe neurosyphilis. In order, therefore, to be assured that there was no active focus of syphilis in the nervous system, spinal fluids were examined in this group of patients on the assumption that a normal spinal fluid was the best indication of the absence of any active syphilitic process in the nervous system. As a result it was observed that tests of the spinal fluid often were positive even though the Wassermann reaction of the blood was negative. As I used to express it to patients who had syphilis, the requirements of the grammar school and the high school were met when the Wassermann reactions of the blood were persistently negative, but the "college degree" could be given only after tests on the spinal fluid disclosed no abnormalities.

Finally, as a by-product of the use of examinations of spinal fluids over a period of more than thirty years in connection with syphilis, data have accumulated which prove that abnormalities may be detected in some cases even in the primary stage and may arise in every later phase of the disease.

The combined results of examinations of both blood and spinal fluid have done most toward fulfilling the highest clinical requirements for the diagnosis of neurosyphilis and management of syphilis in general. However, an examination of spinal fluid presents difficulties. First, headaches occur frequently as a result of lumbar puncture so that in many instances patients lose several days or even several weeks from a gainful occupation. Second, there is a certain amount of technical difficulty in performing lumbar puncture which should restrict its use to those who have had ample practice. Third, it should be mentioned that there is always a possibility of fatal meningitis though this accident almost never occurs in the hands of capable operators. Fourth, an examination of the spinal fluid, if complete, is fairly complicated, requiring certain laboratory facilities which are not available in every community. A complete examination of the spinal fluid should include a Wassermann test, a cell count, an estimation of the globulin and total protein, and finally a gold sol or similar test. Such an examination is not always satisfactory because spinal fluid often becomes massively contaminated with bacteria if much delay occurs before examination.

Because of these difficulties accompanying lumbar puncture and the examination of spinal fluid, there would be much advantage in a simple blood-test which would eliminate the necessity of the one

*Read at a symposium on general paresis, State Hospital for Mental Diseases, Howard, Rhode Island, January 11, 1932.

or more spinal fluid examinations now required in every case of syphilis, or confine it to a relatively small group. A blood-test which would be sensitive and accurate enough to be positive in every case of active syphilis, and thus positive whenever there were abnormalities in the spinal fluid and never negative unless the spinal fluid was normal, would aid greatly in both diagnosis of neurosyphilis and in determination of cure of syphilis. Such a test, if positive and accompanied by appropriate clinical signs, would establish a diagnosis of neurosyphilis without an examination of the spinal fluid, and if negative would entirely eliminate the possibility of syphilis of the nervous system. Moreover, if when such a test was negative the spinal fluid was always normal, a routine examination of the spinal fluid as final evidence of cure would be unnecessary. Berk has accumulated the evidence which indicates that the Hinton test almost completely fulfills these requirements. In his carefully conducted study of 787 consecutively chosen cases in which treatment for syphilis had been started in every stage of the disease, it was found that 555 subjects had positive, 31 doubtful, and 201 negative Hinton reactions. Amongst the 555 patients with positive Hinton reactions there were 108 who had abnormal spinal fluids, 310 who had normal spinal fluids and 137 who had slight but not significant changes in their spinal fluids. In the 31 cases in which the Hinton reaction was doubtful there were 29 patients with normal spinal fluids, and two patients with spinal fluid which was slightly but not significantly abnormal. In the 201 cases in which the Hinton reaction was negative there were 186 normal spinal fluids and 15 spinal fluids in which there was a gold reaction of less than three or a slight elevation in total protein but no increased cell count or positive Wassermann. This is the most important group inasmuch as the spinal fluid in none of these fifteen cases showed diagnostic laboratory evidence of neurosyphilis.

Furthermore, Berk's study has demonstrated that caution should be used in the interpretation of the test. The final decision regarding diagnosis, effect of treatment, and cure should not be made on the basis of a single negative or a single positive Hinton reaction, accurate as it has been found, unless perchance there is overwhelming clinical evidence to confirm it. To make those who treat syphilis understand this is most difficult. A syphilologist at times spends the greater part of an afternoon on the examination of preparation after preparation from a suspected primary lesion, and repeats the procedure on several subequent days, before he discovers treponemes; and yet, in contrast to his own recognized fallibility, he demands that a single blood test performed in another's laboratory be accurate and final. This was perfectly illustrated in a recent experience with a friend who submitted a single specimen of blood for a Hinton, a Wassermann and a Kahn test. All were found to be negative. Inasmuch as there were unmistakable clinical signs of neurosyphilis, my friend advised lumbar puncture, which the patient accepted. Another specimen of blood was sent to me with the spinal fluid, and both were positive. In this instance, the lumbar puncture might very well have been omitted for diagnostic purposes. To avoid such errors, there is just one rule to follow: In every instance in which evidence in favor of the validity of the single test is not unequivocal, three or more specimens of blood should be submitted for examination at intervals of about four days or more. A predominance of positive or negative reactions will, in most instances, indicate whether or not syphilis is present.

In neurosyphilis, as in syphilis in general, four factors influence the result of any laboratory test for syphilis. They are: (1) duration of the infection; (2) response of the individual to *Treponema pallidum;* (3) character and duration of treatment, and (4) response of the individual to treatment. For clearness, I shall treat these factors as they relate to neurosyphilis during the primary, secondary and tertiary stages.

Primary Syphilis

The nervous system is invaded by treponemes during the primary stage, but the response is generally retarded so that during the first month or two of primary syphilis abnormalities of the spinal fluid can be demonstrated in relatively few instances as compared with the later stages of the disease. Nevertheless, the Hinton test on the blood, as shown by Thurmon, is positive in 98% of the cases within the first two weeks after the appearance of the primary sore. Thus, in the event of failure to find treponemes in a primary sore, the diagnosis of syphilis can be made with its aid in infections of shorter duration than when the Wassermann or any other blood test for syphilis with which we are familiar is used; and conse-

quently treatment may be started earlier. An individual with primary syphilis usually responds so well to thorough treatment that the appearance of late inflammatory or degenerative changes in the central nervous system is relatively rare, though some changes sometimes occur when treatment has been begun after the appearance of a positive Wassermann reaction. In these cases, as indicated by Sanford, the Hinton reaction continues to be positive for a longer period than the Wassermann or other tests and thus, I may add, better guides the physician in his treatment of the patient. From the observations which I have made I am of the opinion that if the Hinton test of the blood should remain positive for a year and a half in spite of thorough treatment, lumbar puncture may be undertaken and the spinal fluid examined. To me, this seems necessary only if a change in the character of treatment is to be made in the event of an abnormal spinal fluid, in the belief that some special medication is essential for neurosyphilis. Otherwise the previous treatment should be intensified if the physical condition of the patient permits. Even such an indication for lumbar puncture may in some instances disappear if a positive reaction of the blood lasting more than a year is considered a signal for very intensive treatment in the hope of eradicating all possibility of syphilitic injury of any type in later years.

Secondary Syphilis

During the secondary stage, as judged by examinations of spinal fluid, from 50 to 70% of the cases show abnormalities of this fluid in response to the invasion of the central nervous system by treponemes. Vigorous treatment is always indicated during this stage. Under such treatment, a positive Hinton reaction of the blood persisting for more than a year should be looked upon as a signal for a more intensive type of treatment, which may be continued for an additional six or eight months. If, at this time, the Hinton reaction of the blood is negative, lumbar puncture is of no value; for, as Berk has found in such cases, the spinal fluid has always been normal or practically so. If the Hinton reaction is positive after a year and a half of continuous treatment, I believe that lumbar puncture may be undertaken whenever it is thought that treatment must be varied if the spinal fluid is abnormal. There has been considerable discussion as to the desirability of examining the spinal fluid after about six months of treatment in the case of patients who began receiving treatment during the secondary stage. This discussion has arisen because of the possibility of a prompt discovery of the so-called asymptomatic neurosyphilitic—an individual who has no signs of neurosyphilis except abnormalities of the spinal fluid. To my notion, it is not the occurrence of abnormalities of the spinal fluid within the first six or ten months of the disease that should be a cause for alarm, but rather their persistence in spite of intensive treatment; for changes which occur early in the course of the disease spontaneously regress just as cutaneous manifestations do, leaving little or no evidence of their existence except probably a few treponemes. Therefore, I can see no reason for a lumbar puncture during the first year of syphilis unless it is done for research purposes. I willingly grant that pathologic changes in the spinal fluid during this stage indicate a potential neurosyphilitic. On the other hand, there are cases of neurosyphilis, as cited by Nonne and others, where the spinal fluid was normal during early syphilis and became abnormal later in life. The recruits for grave neurosyphilis, it would seem, therefore, are not solely derived from those who show abnormalities of the spinal fluid during the first year of the disease, but from the entire group of syphilitics. I have seen only surmises to the contrary but no proof.

Tertiary Syphilis

In the tertiary stage, the response of the nervous system to invasion by *Treponema pallidum* is almost always in the nature of reappearances of inflammatory and degenerative changes. Here generally the most serious clinical signs are seen because there is a tendency to far greater and more severe reaction of the tissues than in the earlier stages, though the tissue reaction is usually of a more localized character. Nevertheless, in some instances the response is such as to produce no demonstrable clinical signs. In consequence of these facts, there are two groups of neurosyphilitics: the symptomatic group and the asymptomatic group. I shall first discuss the former in some detail.

All individuals of the symptomatic group, whether treated or untreated, have had in my experience positive Hinton reactions whenever they have had significant abnormalities in the spinal

fluid. With a positive Hinton reaction, treatment of the most vigorous type is indicated, provided the age and physical condition of the patient permit. If the positive blood reaction is not changed to a negative one within a year and a half, lumbar puncture is indicated provided that it is desired to change to a form of treatment which some believe is particularly suited to neurosyphilis.

The asymptomatic neurosyphilitic is one with no signs nor symptoms of neurosyphilis except an abnormal spinal fluid. As such his diagnosis is impossible unless the spinal fluid is examined. The persistence of a positive Hinton reaction over a period of one and a half to two years in spite of very thorough treatment calls for an examination of the spinal fluid if the asymptomatic neurosyphilitic is to be distinguished from the serum-fast syphilitic who presents no clinical evidence of active syphilis.

In the so-called serum-fast cases, regardless of the stage of the disease in which treatment was begun, provided it was adequate, lumbar puncture is indicated if an intelligent prognosis is to be given.

Conclusions

Our study has led to the following belief:

1. Lumbar punctures are not necessary unless the Hinton reaction remains positive for at least a year and a half, during which time the patient is under appropriate treatment, because there was a positive Hinton reaction in all cases which showed significant abnormalities of the spinal fluid.

2. Lumbar punctures need not be done after the Hinton reaction has become negative because no significant abnormalities were found in the spinal fluid when this blood-test was negative.

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1. Berk, Arthur: Unpublished data.
2. Sanford, A. H.: Which Test for Syphilis? Am. Jour. Clin. Path. Vol. 1, No. 4, July, 1931.
3. Thurmon, F. M.: A Comparison of the Hinton, Wassermann and Dark-field Examinations in Primary Syphilis. Am. Jour. Syph. Vol. 15, No. 1, p. 93, January, 1931.

Discussion Following Dr. Hinton's Paper

Dr. Round: I regret that I was unable to be here to hear Dr. Hinton's paper because I learned years ago that when he has anything to say it is worth listening to. I am sorry that I cannot give you any information about the Hinton test and general paresis. Dr. Hinton is more fortunate than we are in the fact that he formerly, and still does, I believe, refuse to give out a report on any Wassermann without having submitted to him complete clinical data, so that he can interpret the results. We, here, are lucky if we can get the name of the patient. That is a habit that was well grounded among the physicians when I came into laboratory work a number of years ago but I didn't dare to change. We get very little data upon any case that is submitted.

We have tried to develop tests that were reliable. First, we eliminated the old Wassermann and substituted the Kolmer modification. Later we added the Kahn test and later, as Dr. Hinton developed his test, we added that. We now use all three tests on every serum that is submitted, provided there is enough serum. We are unable to check the tests with clinical data because we don't get it. The Hinton test gives a positive result earlier than either of the other tests. The Kahn test persists longer in old cases than either of the other tests. The Kolmer modification of the Wassermann plays an intermediate part; we run it as a sort of check. The Kahn test is a difficult test to read and one which I have been unable to read for a considerable period; perhaps it's failing eyesight. We feel that all the three tests as we are conducting them in our laboratory are all reliable. We have tried not to develop the most sensitive test possible because you know that a test can be made so sensitive that it can be positive in all cases. We have tried to make a reliable test. That reminds me of something you heard the other night at the Providence District Medical meeting. Dr. Brainbridge sent to the state laboratory two specimens of blood on the same patient under two different names and got one positive and one negative result. When he took the matter up with the young lady who was working in the capacity of technician, she told him that the head of the laboratory told her that no gentleman would do a thing like that. If a thing like that occurs I assume that the man may be right. I would advise him to try again, for no laboratory is infallible. Warden Linscott some years afterward gave me an interesting sidelight on that point. You know that a man who is sent out to the jail for ten days is subjected to a Wassermann test and he stays until it is negative, which may take some time. There was a trusty at that time who was acting as a clerical

assistant in the taking of these specimens and for the consideration of five dollars he would take a positive reaction and substitute a negative.

I am sorry that I cannot give you any statement at all regarding the Hinton test and general paresis. Practically all the spinal fluids we get for examination come from this institution and this is one case where I shall have to refer you to this institution for the results which are obtained in spinal fluids in general paresis.

DR. PERKINS: In the old time revival meetings, when one was converted one said "Amen." We have used in Worcester since a year ago July Dr. Hinton's modification of the Kahn. Last year I went over some of our figures, about 1,000 cases, most of whom are general paretics. It is surprising to see the patients who prior to July, 1930, had become negative as far as their blood Wassermann was concerned; when we get them back on the Hinton test their Hinton was positive. Dr. Hinton said that if you had kept them on the Hinton test you would not have let them off treatment. It detects the infection much earlier. We don't let our patients go on too long rest periods.

DR. KASANIN: Suggested that the Hinton test would eventually do away with the lumbar puncture.

DR. EPSTEIN: We follow all cases of neurosyphilis with the Hinton test and also by lumbar puncture and it certainly is true that the Hinton test remains positive for a long time and is often positive in cases in which there is no other evidence of lues. I don't know whether it will do away with the lumbar puncture or not. I suppose it may in certain cases in which there is other clinical evidence of neurological involvement. I suppose we still have to rely on the lumbar puncture for the asymptomatic types of neurosyphilis. It is certainly a very highly sensitive test.

DR. HINTON: The only thing I would like to say is that I don't believe it will entirely do away with lumbar punctures but it will decrease their number. At the present time if a patient has primary or secondary syphilis and at the end of a year or a year and a half the Wassermann test is negative, it is essential that a lumbar puncture be done. We believe that if the Hinton test is negative testing spinal fluid will give no additional evidence of cerebro-spinal syphilis. We believe that 75% of lumbar punctures can be eliminated if the cases are treated early enough.

TUMORS OF THE BREAST*

ARTHUR T. JONES, M.D., F.A.C.S.
131 WATERMAN STREET, PROVIDENCE, R. I.

This paper will deal largely with the analysis of cases of tumors of the breast taken from my private records for the ten years 1919-1929. My object was to check up on the statistics, to see if we could draw some practical conclusions, to see wherein we had made mistakes and to ascertain if possible wherein we might do better for our breast cases of the present and future.

I think that the figures that I will give you later are about comparable with those of other operators. Until one actually goes over his cases and analyzes them carefully he has very little idea of just what the end results are. Like many others, I would have said, off hand, that many of the malignant cases did not recur inside of two or three years, that we had many cases of five years and also many eight and ten years since operation without recurrence. It is only by going over one's histories, keeping a follow-up system and then actually getting these cases all together and checking up that one can say what his results are and draw any conclusions.

My experience has been that the non-malignant and malignant cases during this period were nearly equal in number: 41 benign cases and 60 malignant cases. In other words, we learn something right on the start: that of all the cases we see, 60% are malignant. I think this probably holds good for the man in general practice, who is the one who sees these cases first. The age of our patient means very little, especially after the second decade, as we find cases between 20-30, one in this series; more, to be sure, between 30-40, eleven cases; and 40-50, the greatest number being between 40-60 in this series 37 of the 60 cases were between 40-60 years. There were eight cases between 60-70 years and two cases between 70-80 years. But because a patient is 25 or 30 years of age, don't let us tell her, "Oh! You are young. That is 'undoubtedly benign.' Go home and forget it," or tell her to "rub this ointment or liniment on and if it gets worse in a year or so let me see it again." Or tell her it is just a "swollen gland and I wouldn't bother about it." I wish someone would tell me where so many doctors get the idea that a

*Read before the R. I. Medical Society June 2, 1932.

Continued on page 156

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The R. I. Medico-Legal Society—Last Thursday—January, April, June and October, Dr. Fenwick G. Taggart, President; Dr. Jacob S. Kelley, Secretary-Treasurer.

EDITORIALS

HONORARY DEGREES

A year ago it was our agreeable privilege to note the graceful gesture of Brown University in the conferring of the degree of Master of Arts upon one of our most esteemed brothers in science, Dr. John M. Peters, Superintendent of the Rhode Island Hospital.

That this recognition of worth was essentially merited every physician in Rhode Island will agree.

Again this year we take occasion to congratulate another of our outstanding physicians, Dr. John W. Keefe, who was the recipient of the Doctor of Laws degree by Providence College. Appreciating all that was set forth in the citation, we would like to add: Surgeon, humanitarian and gracious gentleman; and may we also add that we felicitate Providence College in its perspicacious discernment.

AEQUANIMITAS

Equanimity, the physician's watchword, so ably discussed in that splendid essay of the late Sir William Osler which has become the introduction of millions of students to the art of medicine, may still be worthy of a bit of mature consideration on the part of the seasoned practitioner. The lesson is a hard one for many a man, for some indeed impossible. Every day in the routine contacts of daily practice where we are ever standing by as our patients glimpse the abysses of despondency, despair and destruction, we have to remember to keep our own feet squarely planted on solid ground. Too often we find our colleagues, not realizing the strain under which patient and family are acting, failing to make necessary allowances. Not only is the loss of poise in dire emergency to be guarded against but, and I may perhaps say *still more*, must one beware that still more human failing, the loss of one's temper. However inconsiderate, suspicious or just plain "dumb" a patient or his relatives may be, however their actions may ruffle our dignity or wound our pride, it is below us to react with anything but a calm and quiet demeanor. While perfect control in this matter is doubtless vouschafed to the angels only, and while indeed such control should be the rule in dealing with our colleagues and with the world in general, in our contacts with sickness and suffering it is doubly important, and a slip in this regard harms not only the patient but also the doctor himself who makes it. Although saintly characteristics may not ordinarily be conferred on the recipient of the M.D. with his sheepskin he *must*, as he starts into the active work of practice, learn more and more to conserve his expletives for use on the golf links and whatever he lose, be it his patients' confidence, their health, their lives or even the coveted fees, it must never be his temper.

CLINICAL OBSERVATION

Doctors in Rhode Island often deplore the fact that we have no Medical College in the state to stimulate medical study. The awe-inspiring equipment useful in the laboratory does make an impressive sight. A Medical College, however, means medical students and they mean considerable time both from practice and research.

We have in this state an unusual laboratory of clinical material and doctors do not have to devote extra time to it from their hours of rest. We are just as able to record careful histories and good physical examinations as doctors in a medical center. We can review any series of these carefully recorded cases we wish or have the initiative to study. We can be assured that such a review will always teach us something new, something that we have never read in a text book and we will find something that will greatly help others, even those in medical centers.

THE JOURNAL OF PEDIATRICS

The publication of the first number of *The Journal of Pediatrics* makes a worthy addition to the medical journals of the United States. It has been selected as the official organ of the new American Academy of Pediatrics. The pediatricians who were responsible for the formation of the American Academy of Pediatrics are all men eminent in their specialty and respected in their communities.

A review of the contents of the July issue, which is the first, shows the practical value of this journal. The introductory article is by John Lovett Morse and is his address to the second annual meeting of the Academy of which he was the president. After this there are ten articles which are original communications. "The Care of Premature Infants" by Poole and Cooley of Detroit shows the difficulty in following up the treatment in the home. Dr. Arnold Gesell of New Haven is well known for his original studies in child behavior and he stresses the need of having definite standards to use in determining normal behavior.

An article on "The Paranasal Sinuses in Scarlet Fever" by Silverman of Syracuse makes it evident why many cases of scarlet fever become potential carriers of this disease.

Following the original communications is a division called "Critical Review." In this number "The Problems of the Newborn" are presented by Bonar of Salt Lake City. He shows that while there has been real advance in the treatment of the newborn there is still great possibility of improvement. Under the special headings of "Neonatal

Mortality and Morbidity," "Premature Infants," "Asphyxia Neonatorum" and "Infections," he gives the important contributions from this country and abroad. The review is given in a very readable style and is of great value to pediatricians and especially to general practitioners, as he says, "The fate of the newborn infant rests chiefly with the general practitioner, for he confines most of the women of this country."

There are other sections to this new journal such as the "Proceedings of the American Academy of Pediatrics," "News and Notes," "Book Reviews" and "Comments." To the reader interested in pediatrics, *The Journal of Pediatrics* is most welcome, filling a definite need. It should be likewise of interest and profit to the general practitioner, for it is this group, still numerous enough even in this age of specialization, that not only brings most of the children into the world, but also carries them through the difficulties of infancy and childhood.

TUMORS OF THE BREAST

Continued

bunch in the breast may be a "swollen gland." The whole breast to be sure is a glandular organ but there are no lymphatic nodes in the breasts themselves. The lymphatics lead from the breasts to the axillary nodes to the supraclavicular nodes, to the mediastinal nodes, but it is not these nodes that are primarily involved. This is the secondary process, an extension of the disease from the primary neoplasm which is in the breast itself.

It would be amusing if it were not so tragic how many patients tell the surgeon that they have been told this, however, by some doctor—one of our own profession (mind you), not an osteopath or a chiropractor, but one of our own, and men often of good standing, honest and well meaning. I cannot make this too strong—consider every bunch in the breast as potentially a cancer—have it removed at once and you will prevent many cases from later presenting themselves before you or some surgeon with a definite cancer.

These cases I have gone over show on the records that 95% of the malignant cases were diagnosed pre-operatively as malignant, that the operative findings, the gross pathology were the same and that this was verified by the frozen section or the microscopical examination postoperatively. Whether or not the axillary nodes are palpable means very little except from the positive findings, for we may be unable to palpate any nodes, especially in the obese subject. Yet when the axillary space is dissected we may find nodes that are very sizable and which the microscope shows us already are cancerous.

I wish to emphasize the importance of the frozen section done by a competent pathologist at the time of the operation. The surgeon should be prepared to go ahead with a radical operation if malignancy is found. There are too many small tumors removed, the specimen examined and reported upon ten days or two weeks after the operation—and I am sorry to say too many that are removed and lost or deliberately not examined at all and the patient told, "Oh! Yes, it was a harmless growth and you will have no further trouble," only to appear a few months later with a growth in the same location or with an involvement of the axillary nodes and the case one of unquestionable malignancy.

I am not going to give you a table of statistics which you would forget as soon as the paper is read, but rather I will bring in the salient points gained from this analysis as I read, feeling that the figures will mean more if presented this way and perhaps be of more practical importance. I have tabulated these cases rather fully as to age, time of recurrence in malignant cases, those that were irradiated and those not irradiated, but to give you all this would take more time than I wish and probably more than you wish me to take.

All of the tumors or breasts removed were examined by a competent pathologist and practically all of the benign cases had a frozen section done at the time of operation.

There were four cases diagnosed as benign which at time of operation proved to be malignant, so you see the importance of having your frozen section and going ahead with radical operation if reported malignant. I think that few cases with benign tumors of the breast that are removed later develop malignancy, but there is no question that the benign tumor if not removed may later take on a malignant change. I doubt if the breast that has had a benign tumor removed is any more prone to develop cancer than the breast that has never been operated upon, that is, has never had a benign growth in it. I have seen only a few in my experience.

Heredity

There is no question but that heredity plays a very important part in the occurrence of cancer of the breast as well as elsewhere in the body. The history of cancer in the family is of too frequent occurrence to be ignored or looked upon as a coincidence. I think we can give real weight to a family history of cancer—at any rate it should make us all the more suspicious of any bunch in the breast and stir us to have that bunch removed at the earliest possible time.

Most of the cases come to us with the history of a bunch in the breast which the patient has accidentally detected in feeling of the breast, in bathing or following some more or less slight injury which called her attention to the breast and upon feeling it over she detects a bunch or a sore area.

In a large percent of these studied cases, pain was not a prominent symptom and as a rule is not an early symptom or prominent symptom at any time. A stinging or smarting sensation may direct her attention to the breast and cause her to consult a doctor. So do not judge that because a patient has no pain it is not cancer.

The length of time that these cancer cases were aware that they had trouble or a definite bunch before consulting a doctor is interesting. In this series they range all the way from one week to two years and some even longer than two years.

About mortality in the malignant cases. We had two deaths in the 60 cases. One died from a streptococcic infection — I believe from an infected drain in the axilla. The second case died from a cerebral embolism 24 hours following operation.

Morbidity

The greatest number of recurrences took place in the second year. The first year showed quite a number of recurrences, but less than in the second year. Recurrences in the third, fourth, and fifth years were less than in the second year. The cases that recurred in the bones, however, were in the third to fifth years. Of these we found seven cases. I wish to say a word here regarding bone metastasis. It is only in recent years that we realized that many of these cases developed bone metastasis with no other evidence of recurrence. I think that before we began having these cases X-rayed that many cases were treated for lumbago, some back or hip trouble, the origin of which was not determined, or a patient had a fracture from a fall or a spontaneous fracture, became bed-ridden and died without a diagnosis of recurring cancer in the bones having been made.

Irradiation vs. No. Irradiation.	*Dead Following Operation.*
We find in the first year:	
Not irradiation	4 cases
Had "	2 "
In the second year:	
Not irradiation	4 cases
Had "	7 "
In the third year:	
Not irradiation	5 cases
Had "	1 "
In the fourth year:	
Not irradiation	4 cases
Had "	1 "
In the fifth year:	
Not irradiation	0 cases
Had "	2 "
To sum this up for five years:	
Not irradiation	17 cases
Had "	13 "

Of the cases that had irradiation following operation, the incidence of recurrence was slightly greater in those that were irradiated than in those that were not. For instance, we find dying two years after operation four cases not irradiated and seven cases that were irradiated. I think the reason, however, for these findings is this; the more advanced cases were the ones that we were sure to have irradiated, and I do not believe that the X-rays caused them to recur earlier, for I think that had they not been irradiated they would have recurred just as early and possibly earlier.

Of the question of the value of irradiation after a case has shown recurrence there is no doubt, as these cases respond to the X-rays, the recurring masses or nodes often diminish in size, pain is relieved in many cases and the life of the patient is definitely prolonged and made more comfortable. This statement applies to the deep intensive dosage and not to the light exposures which were earlier given and which I think undoubtedly did cause early recurrence.

Of the cases living five years or more we find from our records that we have *22*: Nine cases that did not receive irradiation and 13 cases that did receive it, three cases are living nine years following operation:

2 cases.....10 years
3 " .....11 "
1 " .....12 "
1 " .....13 "

There were some cases in this series operated upon which in the light of our present knowledge would not or should not be operated today.

The very extensive growth that is fixed to the chest wall with axillary or possibly supra-clavicular involvement possibly already with bone or mediastinal metastasis is a case that should not be subjected to surgery but should have the benefit of radium or X-rays or both. Another point I wish to bring out is that metastases may have already taken place when the case comes to us and it is surprising how early lung or bone metastasis may take place. If we can make a positive diagnosis of cancer when the patient comes to us, and this was done in 95% of the cases, then I wish to make this statement—that every case of cancer of the breast should have before any operation is performed, a thorough X-ray examination of the chest, skull, long bones, spine and pelvic bones. Only by doing this may we detect the early metastases and avoid operating upon cases that already have metastases and which best not be operated at all.

In the past we have operated an occasional case with a large sloughing cancerous breast, in which case the patient was utterly miserable and a great care, as well as a disagreeable nasty condition to dress and attend to. The operation was done solely to get rid of the sloughing mass and to make the end more comfortable for the patient as well as for those caring for her, but with no thought of eradicating the disease or prolonging life. In fact these cases die more promptly following operation than when let alone.

Today I feel that these cases are best treated with radium and X-rays, as is being done at the Memorial Hospital in New York and many other places throughout the country.

Bone Metastasis

We find seven cases which had bone metastasis. These were all cases with a pathological diagnosis of carcinoma.

We had four cases of sarcoma. None of these cases developed bone metastasis and two are living and no evidence of recurrence more than five years following operation. One case shows evidence of probable metastasis in axillary fold and a small nodule on the forearm, yet is doing her work and apparently very well. She has had much intensive X-rays for the recurrence.

The fourth case died from recurrence eight and one-half years following her first operation.

Conclusions

Every tumor of the breast should be considered as potentially (at least) a cancer and should be removed as soon as detected.

Breasts operated for benign growths are no more apt to develop malignant growths following than are the normal breasts.

Frozen section diagnosis should be a routine method of diagnosis when operating upon these presumably benign cases, as many of these are borderline cases and occasionally we find one that is definitely malignant and we should be prepared to go ahead with our radical operation if this is the diagnosis.

Sixty per cent of cases of tumor of the breast that come to us are already cancer. We can cut down this 60% very materially by removing every tumor, as many benign tumors if allowed to remain take on a malignant change.

Ninety-five per cent of breast tumors that are cancerous can be diagnosed as such before operation. Every one of these cases should be X-rayed before operation for any evidence of bone, lung or mediastinal metastasis. If this is found, do not operate.

The large inoperable cancers of the breast are best treated with radium and X-rays and without any surgery.

SOCIETIES

The Rhode Island Medical Society

Council Meeting

A special meeting of the Council was held at the Medical Library Tuesday, Aug. 16, 1932, at 4:45 P. M., with the President, Dr. N. D. Harvey, presiding.

A communication from Dr. C. L. Scudder of Boston, Chairman of the Committee on Fractures of the New England Surgical Society, was read by the Secretary. Dr. Scudder stated for his committee that they planned to give instruction in the

treatment of common fractures of the upper and lower extremities to the doctors of all the New England States. The Massachusetts Medical Society has approved of the plan and has appropriated money for that purpose. Dr. Scudder sought the approval of the Rhode Island Medical Society and any appropriation for the purpose of the study. It is the plan of the Committee to approach some fund with the approval of all the New England State Medical societies, and such money as the Committee is able to collect by appropriation from the several State societies with the purpose of trying to interest such fund in the furtherance of the plan. From Dr. Scudder's letter the exact details of the method of carrying out the aims of the Committee were not clear and it was the general feeling of the Council that further information about the plan was desirable. It was moved by Dr. DeWolf and seconded by Dr. Mowry that the Secretary be instructed to write to Dr. Scudder expressing the interest of the R. I. Medical Society in the plan and giving its approval in principle to the plan, but pointing out the lack of detail as to the working of the proposal in this State, and to invite Dr. Scudder or other member of his Committee to address the September meeting of the R. I. Medical Society for the purpose of explaining and talking over with the members of the Society the plan. It was so voted.

Dr. Byron U. Richards having attained the age required by the By-Laws to place a member on the retired list, and at his request, it was so voted.

It was voted that the Committee on Clinical Conferences which were held during the years 1925, '26 and '27 be requested to report and recommend disposition of any funds now in the hands of that Committee.

A communication from Dr. Clifford Griffin relative to telephone directory listing of chiropractors as physiotherapist physicians was presented by the Secretary. The matter was discussed by the Councillors and the consensus of opinion was that the R. I. Medical Society has no control over chiropractors nor the telephone company. On motion by Dr. Chace, seconded by Dr. Keefe, the matter was laid on the table.

Adjourned.

J. W. LEECH, M.D., *Secretary*

HOSPITALS

CLINICAL-PATHOLOGICAL CONFERENCES

RHODE ISLAND HOSPITAL

Case No. 3 presented by Dr. Emery M. Porter.

E. R. Age, 42. Admitted Feb. 7, 1932. Housewife.

P. I. In July, 1931, patient had "quincy sore throat" with considerable fever. On the following week she was able to go outdoors and very quickly developed painful joints. These were not sufficiently stiff to cause her to go to bed. After a few days symptoms disappeared but she seemed completely "used up." She lost her appetite. We went off on a trip away from home and about the 30th of September developed pain in the region of the right thigh down to knee. This persisted up to three weeks ago. Past three weeks has had pain in the back with swelling in right sacro-iliac region. On October 17th tonsillectomy was done. This time heart was said to have been affected by the disease. She is also said to have had involvement of the sacro-iliac joint. At one time doctor thought there was a growth present. X-ray showed nothing but "inflammation." It seemed as if it would be necessary to open the sacro-iliac joint but this was not done.

F. H. Negative.

P. H. Diphtheria at 20 years of age; measles and pertussis in childhood; no rheumatic fever or chorea. Nose and throat: No history of tonsillar infections or tonsillectomy. Ears: Negative. Eyes: Has worn glasses since 8 years of age. Teeth: Good, no crowns. Gastro-intestinal tract negative. Cardio-respiratory system negative. Menstruation normal up to last period, which was omitted. Habits normal. Social history: Has devoted her time to caring for her parents' home in recent years.

F. H. Negative for diabetes, mental disease and tuberculosis. Parents alive and well. No brothers or sisters.

Physical Examination

Physical examination reveals a very pallid young woman lying in bed, evidently very ill. She is, however, rational and co-operative.

Mucous membranes are very pale.

Pupils are equal, regular and react normally to light and distance. Fundi appear negative as far as they can be seen.

Ears negative. Nose negative. Tongue slightly coated.

Teeth: About the teeth the gums are apparently inflamed.

Tonsils absent.

No thyroid enlargement noted. No peripheral lymph node enlargement noted.

Chest symmetrical. Sides moves equally with respiration. No abnormal retraction.

Heart not enlarged to percussion, sounds normal in rate, rhythm and character. No murmurs heard.

Lungs: Negative in front, not examined posteriorly.

Abdomen examined with patient lying on side shows nothing of note.

Back: Over the side of the right sacro-iliac joint there is a very definite swelling which is fluctuant but not very tender nor red. This definitely bulges well above surrounding surfaces.

Extremities: Negative. Tendon reflexes normal.

From time of admission until Feb. 11, 1932, patient ran a picket fence temperature, daily, varying from 99 to 103.5, pulse during same interval ranged between 100-130, respirations normal.

Feb. 4, 1932. Blood culture reported sterile.

Feb. 6, 1932. G. I. series reported negative for pathology.

Feb. 10, 1932. Skiodan which failed to show any signs in rt. kidney region.

Feb. 17, 1932. X-ray of chest reported negative.

Blood chemistry on admission.

Urea 16 mg. Sugar 85 mg. Wasserman negative.

Feb. 9, 1932. White count 14,900. R. B. C. 2,300,000 Polys 80%, small lymph 16%. Trans. 4%.

Feb. 12, 1932. Stool negative for blood.

Feb. 9, 1932. Culture from aspiration of mass in left sacro-iliac region reported sterile, no organism found on smear.

Feb. 11, 1932. Patient typed and transfused with 500 cc.

Feb. 12, 1932, Operation: Incision over fluctuating mass on back. Large broken down cavity found filled with pus and a peculiar looking broken down tissue. Several ounces of the latter were curetted out with the finger. No sinuses found extending beyond the cavity. The latter extended over to the external surface of the ilium so that bare bone was palpable. Six cigarette drains inserted.

From *Feb. 13 to March 8, 1932* (post-operative): Patient ran same septic like temperature as before for the first week. Second week temperature averaged 101, and pulse became more regular, and averaged between 90-100. Pain entirely disappeared, appetite improved for the first 10 days and then rapidly decreased.

Feb. 22, 1932. White count 25,000. Hgbn. 75%, polys 88%.

Feb. 26, 1932. Report from culture at time of operation diphtheroid baccilli and strep hemolyticus. Smear, Gram diplococci.

Feb. 29, 1932. Blood culture reported sterile.

March 1, 1932. Cystoscopy and pyelogram of rt. kidney. Bladder held 250 cc. reported normal. No. 6 catheter passed without obstruction to the right kidney region from which a clear urine flowed freely.

Pyelogram done and 35 cc. injected into kidney without pain. The appearance time was 15 minutes and with less than 1%.

March 3, 1932. X-ray treatment started.

Wound drained very profusely for many days and then gradual discharge until today there is just a slight stain from the last 24 hours.

Urine examinations have been negative throughout.

Miriam Hospital

The regular monthly meeting of the Miriam Hospital Staff Association was called to order at 8:30 P. M., May 19, 1932, by the President, Dr. Libby.

Several interesting cases which were presented gave rise to much discussion.

1. Dr. Feinberg presented a case of tuberculosis meningitis. Death seven days after onset. Dr. Kennison discussed the spinal fluid findings.

2. A case of atypical leukemia which presented many difficulties in diagnosis was reported by Dr. Feinberg. A temperature chart which simulate typhoid fever complicated the picture. Dr. Kennison gave the autopsy findings and thought they pointed to a diagnosis of pernicious anemia.

3. A monstrosity, a case of anencephalos, that lived for twenty-four hours after delivery, was reported in detail with autopsy findings by Dr. Kennison. With the exception of the brain, all organs were normal without transposition.

4. Dr. William Cohen reported a case of complete alopecia in a patient, age 48. Autopsy findings were chronic myocarditis and adrenal pathology of a general inflammatory nature, suggesting that the adrenals might have something to do with the loss of hair. Discussion brought out the fact that the changes observed may have taken place postmortem.

5. Dr. Freedman discussed adrenal function. He presented a case of amaurotic family idiocy, age 15 months, and discussed some of the related rare conditions, such as Gaucher's disease and infantile myxoedema.

Meeting adjourned at 10:30 P. M.

HERMAN A. WINKLER, M.D.,
Secretary of the Staff.

The regular monthly meeting of the Miriam Hospital Staff Association was called to order at 8:45 P. M., June 16, 1932, by the President, Dr. Libby. Sixteen members were present.

Dr. Kennison showed blood culture plates from a case of streptococcus viridans infection of the blood stream. Dr. Leo Cohen discussed the clinical aspects of the case.

Dr. Seltzer gave a complete and highly instructive report of a case of progressive bular palsy in a man, age 58. Present illness two and a half years' duration, progressive involvement of V, VII, IX, X, and XII cranial nerves, no sensory disturbances, intellect unaffected, pytalism marked and swallowing difficult. Differential diagnosis discussed in detail.

Meeting adjourned at 10:15 P. M.

HERMAN A. WINKLER, M.D.,
Secretary of the Staff.

CORRECTION

The examination of the AMERICAN BOARD FOR OPHTHALMIC EXAMINATIONS will be held Monday, Sept. 19, 1932, at Montreal, at the time of the meeting of the American Academy of Ophthalmology and Oto-Laryngology.

MISCELLANEOUS

THE AMEBIASIS PROBLEM

By "ambeiasis" Charles F. Craig, New Orleans (*Journal A. M. A.*), understands all infections of man with endamoeba histolytica without regard to the presence or absence of symptoms of such infection. In the past, the terms "amebiasis" and "amebic dysentery" have been regarded as synonymous by most writers of monographs and textbooks, and it is surprising to see in some of the most recent works, even those on tropical medicine, the entire subject of amebiasis considered under the heading "amebic dysentery." Such a conception of amebiasis is obsolete and until the profession understands that amebic dysentery is simply one stage of amebiasis, little can be hoped for from the standpoint of prophylaxis and treatment. Despite all the data that have accumulated demonstrating that amebiasis, including amebic dysentery, is world-wide in distribution, the majority of the medical profession still considers amebic dysentery a tropical disease and amebiasis as synonymous with amebic dysentery. It is most unfortunate that the term "amebic dysentery" should have become, in the minds of most medical men, a synonym of amebiasis, or amebic infection; for while dysenteric symptoms are quite characteristic of the serious cases of infection with endamoeba histolytica, the vast majority of such infections are not accompanied by dysenteric symptoms but by much milder symptoms usually attributed to some other factor and not recognized as the result of infection with this parasite. Up to the present time no nation-wide survey of the incidence of endamoeba histolytica among home dwellers has been made, and it is evident that until this is done there will be no accurate statistics regarding the infection of the general population of the United States. However, enough has been done to warrant the statement that it is conservative to estimate that between 5 and 10 per cent of the people of this country harbor endamoeba histolytica. Taking the population of the country at 120,000,000, this means that between 6,000,000 and 12,000,000 people are infected with this parasite in the United States. If one is very conservative, the evidence is certainly sufficient to warrant the statement that 1 per cent of the population, or 1,200,000, are harboring endamoeba histolytica in this country, and that, from the standpoint of incidence of a parasite alone, amebiasis is a problem worthy of consideration. It

is undoubtedly true that the vast majority of infections with endamoeba histolytica in this country are acquired through food handlers in public eating places. While in rural communities infection undoubtedly occurs in the home, and while this is also true to a lesser extent in the cities, it is no less true that the great source of infection in this country is the food handler in public eating places. The education of the public will curb home infection to a large degree, but only the discovery and proper treatment of carriers who are public food handlers, will result in any great decrease in the incidence of this parasite. The importance of treatment of infections with endamoeba histolytica, even though there may be no symptoms present that have attracted the attention of the infected individual, cannot be overstressed. No one can tell what pathological lesions may be present in such individuals or what lesions may develop in the future. Every individual harboring this parasite should be treated as soon as the diagnosis is made. Treatment is for the best interests not only of the patient but also of the public, as the cure of every infection reduces by that much the danger of the transmission of the parasite to others.

DIAGNOSTIC SIGNIFICANCE OF HEMATEMESIS

According to Andrew B. Rivers and Dwight L. Wilbur, Rochester, Minn. (*Journal A. M. A.*), the source of hematemesis may usually be determined with accuracy if data, obtainable through a detailed anamnesis, careful general examination and systematic laboratory data, are carefully evaluated. The most common cause of hematemesis will be found in intrinsic gastric duodenal or jejunal lesions. Peptic ulcer is by far the most common cause of this symptom. It is well to remember that indigestion and hemorrhage usually mean an intrinsic gastro-intestinal lesion. Diseases in which varices are likely to develop are next in importance in the production of hematemesis; they accounted for 5.5 per cent of the 668 cases of the authors' series. Vomiting of blood is a rare complication in blood dyscrasia, and the recognition of such diseases is usually accomplished without much difficulty. Surgical exploration seems the advisable procedure in cases of repeated hemorrhage when there is no evidence of blood dyscrasia or of hepatic or splenic disease. In practically all such cases the bleeding is explainable on the basis of an intrinsic gastro-duodenal lesion.

BOOK REVIEW

A PUBLICATION OF THE WHITE HOUSE CONFERENCE — REPORT OF COMMITTEE ON GROWTH AND DEVELOPMENT OF THE CHILD

KENNETH D. BLACKFAN, M.D., *Chairman*

Part III. NUTRITION
Century Co., publishers

This volume, written by thirty-one physicians and scientists, gives in considerable detail a summary of the child's diet, the value of the different elements, and their occurrence in articles of food. The chapters on the vitamins are very complete. Other especially interesting chapters are those on minerals, the choice of foods, and the effects of cooking and preserving processes on the nutritive value of foods. The effect of diet on the teeth, the proper and improper use of sweets, the effect of coffee, tea and cocoa are discussed on the basis of scientific evidence available and not on the basis of personal impression.

As a matter of fact it is impossible to specify any particular part of this book for especial notice. The whole volume is a carefully written account of modern knowledge of the child's diet in all its aspects. This book is invaluable as a reference book and should be read by all physicians interested in the care of children.